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Bureau of Agricultural and Industrial Chemistry
Southern Regional Research Laboratory
2100 Robert E. Lee Boulevard
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LIST OF PATENTS WITH ABSTRACTS
January 1, 1944 - June 30, 1949

The patents listed below, assigned to the United States Government as represented by the Secretary of Agriculture, are available for licensing on a royalty-free, non-exclusive, revocable, and non-transferable bases.

Further information on any of these patents will be furnished, on request, by the Southern Regional Research Laboratory, 2100 Robert E. Lee Boulevard, New Orleans, Louisiana.

Applications for licensing should be directed to the U. S. Department of Agriculture, Bureau of Agricultural and Industrial Chemstry, Washington 25, D. C.

Copies of the patents can be obtained only from the Commissioner of Patents, Washington,D. C., at 25 cents each.

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Pat. No. 2,344,528. MATERIALS-CONVEYING FLUE, Clarence M. Asbill, Jr., patented March 21, 1944. Patent describes an improved air blast conveyor flue of the type used for conveying lint materials. The improved flue has attached to its inside wall a specially designed fin to prevent the spiraling air motion which in ordinary flues causes objectionable roping and tangling of some materials, such as long staple cotton. The conveyed material passes freely through the improved flue and is not injured by the fin.

Pat. No. 2,352,707. COTTON YARN FOR WATER-PRESSURE HOSE, Charles F. Goldthwait, patented July 4, 1944. Invention relates to cotton yarn useful in the manufacture of water-resistant fabrics, particularly to the yarn used in making unlined hose for carrying water under pressure. Among its objects is the production of articles with water-holding walls woven from cotton yarn having special swelling properties when wet. In general, the cotton yarn is impregnated with, and has formed on its surface, a cellulosic material which has the capacity of swelling when wet. The preferred method of treating the cotton involves the use of one of the ethers of cellulose, particularly hydroxy ethyl cellulose.

Pat. No. 2,352,906. SPRING BALANCE, William James Lyons, patented July 4, 1944. A spring balance for accurately obtaining weights (as required in laboratory practice, for example), which is easily manipulated and at the same time reduces the human factor entering into its use, is described. More particularly, the invention provides for a rotatable index pointer control knob in a convenient location at the side of a spiral spring balance and for a zero-adjustment control knob on the front of the instrument where it can be manipulated conveniently.

Pat. No. 2,365,793. COTTON-WORKING MACHINE, Clarence M. Asbill, Jr., and Ray C. Young, patented December 26, 1944. This invention relates to a cotton-working machine which will break up large lumps of cotton into finely divided lint; which will feed the lint at a relatively uniform rate into a lint flue conveyor; and which will facilitate the removal of trash and other foreign matter from the lumps of cotton.

Pat. No. 2,370,129. CUTTING MACHINE, Clarence M. Asbill, Jr., and Grover B. Hill, patented February 27, 1945. A machine designed specifically for cutting lint cotton into short fibers is described. The machine is suitable for cutting other fibrous materials such as tobacco leaves, corn stalks, citrus peel, and the like, and may also be used to cut sheet materials which are easily sheared into strips. The invention provides a machine of small size but with a large cutting capacity, which is continuous in its operation and capable of long use.

Pat. No. 2,376,568. TREATMENT OF OILSEEDS, Aaron M. Altschul and Melvin L. Karon, patented May 22, 1945. Describes a process, similar to that covered by Pat. No. 2,376,852, whereby the normal pH of oilseeds is increased by chemical treatment as a means of improving the storage properties of the seed. Although use of ammonia is preferable, the same result may be accomplished by the use of other volatile bases which produce the required adjustment of the pH, as for example, morpholine. (See also Pat. No. 2,376,852.)

Pat. No. 2,376,852. TREATMENT OF OILSEEDS, Aaron M. Altschul and Melvin L. Karon, patented May 22, 1945. Describes a process for treating oilseeds with a volatile base, preferably ammonia, to raise the pH to not less than 8.0 as a means of improving the storage properties of the seed. As a result of such treatment, cottonseed with a moisture content as high as 20 percent has been successfully stored for more than eight months without developing an appreciable amount of free fatty acid. The seeds did not heat at all, and the color of the resulting oil was lighter than the original color of the untreated seed. Treatment should precede extraction of the oil by at least a week. In addition to inhibiting the natural deteriorative processes in the stored seed, the treatment also successfully prevents the growth of molds on moist cottonseed. (See also Pat. No. 2,376,568.)

Pat. No. 2,379,574. METHOD OF PRODUCING SURGICAL BANDAGES WITH IMPROVED ELASTIC PROPERTIES, Charles F. Goldthwait, patented July 3, 1945. A method of improving cotton fabric for use as a surgical bandage by the addition of elasticity is described. Open weave cotton fabric is treated with a solution of sodium hydroxide of about 20 to 25 percent concentration without applying tension, and the resulting shrinkage in all directions imparts to the individual yarns of the fabric many small spring-like crimps. The sodium hydroxide is removed and the fabric is dried while in the non-tensioned state. The elastic properties of this bandage allow much more freedom of movement than usual to bandaged parts of the body without the bandages becoming loose. (See also Pat. No. 2,404,837.)

Pat. No. 2,404,837. METHOD OF MAKING COTTON FABRICS WITH DIFFERENTIAL ELASTIC PROPERTIES, Charles F. Goldthwait, patented July 30, 1946. This invention relates to the production of a cotton fabric which is highly elastic in one direction but relatively inelastic in the other. Such fabrics are prepared by either of two modifications of the general method of causing shrinkage by means of swelling agents: (1) by allowing the shrinkage to take place in only one direction while restraint is exerted to prevent shrinking in the other direction, or (2) by allowing the shrinkage to take place in both directions and then pulling the fabric back by tension in one direction to as nearly as possible its original length or width, depending upon the direction in which the elastic properties are to be developed. In addition to mechanical goods, such as surgical bandages, the improved fabrics have many uses for household and clothing purposes. (See also Pat. No. 2,379,574.)

Pat. No. 2,404,887. STABILIZATION OF NITROCELLULOSE, Richard E. Reeves and Joel E. Giddens, patented July 30, 1946. The use of sulfuric acid in the preparation of nitrocellulose ordinarily necessitates complete removal of the retained sulfate in order to stabilize the product. This is conventionally accomplished by repeated boiling in water and beating treatments, a long and tedious process. It is known that addition of a little ammonia to the boiling water aids in stabilization, but the amount must be controlled very closely because the addition of ammonia beyond slight alkalinity deleteriously affects the nitrocellulose. According to this invention, however, ammonia is used at a lower temperature, preferably room temperature. With this modification of the process, the alkalinity need not be so carefully controlled, and the time of boiling and beating necessary to obtain equivalent stabilization of the nitrocellulose is greatly reduced. (See also Pat. No. 2,471,583.)

Pat. No. 2,405,830. PROCESS OF RECOVERING PEANUT PROTEIN, George W. Irving, Jr., Arthur L. Merrifield, Raymond S. Burnett, and Edwin D. Parker, patented August 13, 1946. Production of different protein fractions from peanut meal can be accomplished by adjusting the pH of an aqueous extract of proteins obtained from substantially oil-free peanut meal to specific values in succession and removing the protein fractions thus precipitated at each pH value. Thus, proteins are obtained which have widely different physical and chemical characteristics and are suitable for a variety of uses such as in the production of adhesives, sizes, paper coatings, cold water paints, films, fibers, and other products. (See also Pat. No. 2,463,740.)

Pat. No. 2,417,869. APPLICATION OF CELLULOSE ETHERS TO TEXTILES, Charles F. Goldthwait, Herbert O. Smith, and Larry B. Barnes, patented March 25, 1947. Cellulose hydroxy ethyl ethers which are soluble in aqueous caustic soda can be brought into a similar thick solution by dissolving them in such aqueous cuprammonium solutions as will dissolve purified cotton or wood pulp. This solution can then be applied by usual methods of padding to yarn or cloth. Drying completes the treatment. Both the cellulose hydroxy ethyl ether and the copper are rendered insoluble and remain in the cotton, which is not damaged. The presence of insoluble copper compounds in goods treated by this method provides resistance to mildew and rotting so that the fabric strength is retained under conditions where ordinary cotton would soon become weakened or destroyed through attach by micro-organisms.

Pat. No. 2,418,224. CELLULOSE ACETATE PLASTICIZED WITH AN ARYL MORPHOLIDOPHOSPHATE, Louis W. Georges, patented April 1, 1947. This invention relates to plasticizers which are solvents for cellulese acetate and which retard the burning rate of cellulose acetate compositions. Compounds of the class known as aryl morpholidophosphates were found to be suitable for this purpose. Film-forming compositions of cellulose acetate employing either di-phenyl morpholidophosphate or di-cresyl morpholidophosphate as a plasticizer are described. (See also Pat. No. 2,429,679.)

Pat. No. 2,420,788. COMPOUNDING OF RUBBER, Forrest L. McKennon and John Raymond Lindquist, patented May 20, 1947. Describes a process of solution treatment for soft and tacky rubbers, particularly goldenrod rubber, which will prepare for compounding prior to vulcanization. The process involves dissolving in a mutual solvent, such as benzol, the goldenrod rubber and either all or a part of the desired total number of compounding vulcanizing chemicals (in insufficient quantity, however, to fully compound the rubber). Complete solution of the materials is then insured by heating the mixture and all of the chemicals necessary for detackifying the rubber, after which the mutual solvent is removed. The resulting partially-compounded stock is then heat-treated at elevated temperatures until it becomes sufficiently tough to permit full compounding and vulcanization. (See also Pat. No. 2,453,858.)

Pat. No. 2,421,113. VEGETABLE PROTEIN HYDRATES, Raymond S. Burnett and Earl J. Roberts, patented May 27, 1947. Relates to a process for preparing fluid, comparatively stable and relatively clear vegetable protein hydrates. The term "hydrate" is used rather than the term "dispersion" because the compositions appear as homogeneous (one-phase) solutions of water in protein while dispersions are considered to be heterogeneous (two-phase) mixtures of protein in water. The process consists of forming a mixture of water and protein, the quantity of water being about 50 percent of the hydrate (enough to completely hydrate the protein but not more than the amount which the protein molecules will bind), and the hydrate having a pH of about 7.0.

Pat. No. 2,428,843. FLAME-RESISTANT CELLULOSIC MATERIAL AND PROCESS FOR PRODUCING SAME, Louis W. Georges and Carl Hamalainen, patented October 14, 1947. A process for preparing a flame-resistant fibrous cellulosic material by reacting a material, such as cotton in the dry state, with a hot solution of 2,4,6-trichlorophenyl isocyanate in pyridine is described. One object of this process is to prepare cellulosic fibrous materials with a fire retardant which is an integral part of the cellulose, being chemically combined with the cellulose molecule, and in which the fire-proofing effect will be retained permanently irrespective of washing. Another object is to prepare a fire-resistant derivative of the cellulose in the textile in which there is substantially no impairment of the fiber structure and loss in tensile strength.

Pat. No. 2,429,679. COMPOSITION CONTAINING A CELLULOSE COMPOUND AND A MORPHOLIDE, Louis W. Georges, patented October 28, 1947. Morpholides obtained by reacting morpholine (tetrahydro-p-oxazine) with acylating agents of certain organic acids, such as caprylic, capric, lauric, myristic, palmitic, benzoic, abietic, and adipic acids, were found to be excellent plasticizers for cellulose acetate and other cellulose derivatives. Film-forming compositions employing such plasticizers are described. (See also Pat. No. 2,418,224.)

Pat. No. 2,443,897. PROCESS FOR THE PRODUCTION OF SWEETPOTATO STARCH, Gregory M. Dexter and Francis H. Thurber, patented June 22, 1948. Patent relates specifically to a rapid, efficient, and continuous method for extracting starch from sweetpotatoes. Pectins and similar substances, solidified with lime water, remain in the pulp; solubles are removed in a continuous centrifuge; and starch is separated by means of a countercurrent screening system. The pulp is pressed and dried; and the starch is purified in a series of three continuous centrifugals. Colored compounds then are destroyed with sodium hypochlorite, the salts formed in this stage being eliminated by washing on a continuous filter. Finally, the starch is dewatered by means of a perforated basket centrifugal and dried with a suitable rotary drier. Process may be applicable to the production of other root starches.

Pat. No. 2,444,064. METHOD OF TREATING TIRE CORD, Howard J. Phillipp, patented June 29, 1948. Describes a process for producing tire cord combining high strength with any desired elongation. The strength is obtained by wetting the cotton with a suitable liquid and stretching it at a high temperature, so that it is stretched and dried simultaneously. This step produces a strong cord with low elongation. The cord is then re-wet and stretched without heat, the tension of the second swelling process being so regulated as to produce whatever elongation is desired in the finished cord.

Pat. No. 2,448,153. PROCESS OF MAKING COTTON TEXTILES WATER-ABSORBENT AND ROT-RESISTANT, John David Reid and George C. Daul, patented August 31, 1948. Describes a method of partially carboxymethylating cotton cloth to give a material which should be useful in producing articles which need to be highly absorbent, or which require rot-proofing. The textile product is impregnated with chloroacetic acid, then treated with an alkali metal hydroxide such as sodium hydroxide of concentration between 20 and 50 percent. This gives a swellable, water-absorbent fabric having approximately one carboxymethyl group per 40 to 5 glucose units. Subsequently, the cloth may be treated with a

solution of a salt of a metal, such as copper or mercury, which produces a non-soluble metal salt of the carboxymethyl groups on the textile. This latter treatment renders the fabric rot-resistant. Further modifications of partially carboxymethylated products also are possible.

Pat. No. 2,449,215. METHOD OF PRODUCING COTTON CORDAGE. Charles F. Goldthwait and Herbert O. Smith, patented September 14, 1948. Relates to heat-resistant tire cord produced by a modified process of mercerization. The method, which is suitable for cotton reinforcing cord for pneumatic tires, power belts, and the like, is briefly as follows: Ordinary cotton is formed into a yarn of minimum practical spinning twist; the yarn is treated with an alkali hydroxide in a concentration of about 20 to 25 percent by weight while allowing the yarn thus treated to shrink about 15 percent in length so as to permit maximum swelling of the cotton; residual alkali is washed out with a non-acid aqueous medium; and the yarn is dried and twisted into cord, regaining most of its original length by the usual tension incident to twisting.

Pat. No. 2,453,858. PROCESS FOR OBTAINING RUBBER FROM GOLDENROD LEAVES, Nandor Porges, Elisha F. Pollard, and James J. Spadaro, patented November 16, 1948. A process for producing a usable rubber from goldenrod leaves is described. Briefly, this process consists of decomposing the plant material with micro-organisms to reduce the bulk weight by 29.6 to 41.6 percent. The remaining concentrated plant material is then treated with a resin solvent to remove the resins, followed by a rubber solvent to extract the rubber, which is precipitated by the addition of acetone and then recovered by filtering or decanting. Tests have shown that the final vulcanized rubber is comparable to existing rubbers on the market. (See also Pat. No. 2,420,788.)

Pat. No. 2,459,222. INTRODUCTION OF AMINO GROUPS INTO CELLULOSE, John D. Guthrie, patented January 18, 1949. This invention is a practical process for the introduction of amino groups into cellulose textiles. The cellulose is wet with an aqueous solution of sodium hydroxide (mercerization strength of about 25 percent preferred), containing also 2-aminoethylsulfuric acid (preferably about 10 percent), then is heated at a temperature from 70 to 110 degrees C. for a minimum period from 40 minutes to 9 hours. The preferred temperature and time of heating are about 100 degrees C. and about 40 minutes, respectively. After the heating, the cellulose is washed to remove the sodium hydroxide. Nitrogen up to about 0.60 percent is readily introduced by this procedure, and the treated fabric dyes darkly and fast with acid wool dyes. It also lends itself to rot-proofing treatments and is slightly water-repellent. The 2-aminoethylsulfuric acid may be readily produced by reacting the relatively cheap products fuming sulfuric acid and ethanol amine.

Pat. No. 2,462,803. FIREPROOFING COMPOSITIONS, Kenneth S. Campbell and Jack E. Sands, patented February 22, 1949. A flameproofing composition consisting of chlorinated paraffin wax, a water-soluble urea-formaldehyde condensation product, and antimony oxide, emulsified in water with an emulsifying agent, is described, together with a process for applying it to organic combustible materials. The application includes impregnation of the material in such a manner as to control its increase in weight, then drying and heating to polymerize the urea-formaldehyde condensation product. The fire-retarding

action thus obtained remains substantially undiminished after numerous launderings; and the treated material, if used for clothing, is practically as comfortable to the wearer as the original untreated cloth. No more than about a 25 percent increase in weight and a moderate decrease in air permeability occur, whereas by other methods as much as an 80 percent increase in weight takes place and almost all air permeability is lost.

Pat. No. 2,462,933. PROCESS FOR MANUFACTURING ARTIFICIAL FIBER FROM PROTEINS CONTAINED IN COTTON SEED, Jett C. Arthur, Jr., Melvin L. Karon, Adrian F. Pomes, and Aaron M. Altschul, patented March 1, 1949. Cottonseed protein, as it is normally prepared from cottonseed meal, is obtained in such a form and contains such cross-linkages that preparation from it of dispersions suitable for spinning into fibers is impossible. This patent, however, describes a process by which the cottonseed protein is first treated with acids in such a manner as partially to denature it, to break the cross-linkages which interfere with the dispersion, and to transform the protein into a form from which dispersions can be made. Another result of this treatment is to change the structure of the protein into a more linear form so that its dispersions become tacky and stringy and generally more suitable for fiber production. Such dispersions were successfully spun, stretched, and hardened to produce fiber suitable for textiles and other purposes.

Pat. No. 2,463,740. PREPARATION OF PEANUT PROTEIN FREE FROM PEANUT SKIN PIGMENT, Raymond S. Burnett, patented March 8, 1949. Describes a process by which shelled, unskinned peanuts in the form of kernels are exposed for a few seconds to a dilute aqueous alkaline solution to remove pigment from the skins, then are washed, partially dried, and separated into oil and light-colored meal, from which latter a high quality protein suitable for many industrial uses may be obtained. The patent also describes similar removal of soluble pigments in peanut kernels by a few seconds' exposure to dilute acid, which might be desirable if the protein is to be extracted by acid solutions. However, treatment with alkali was found to remove most of the acid soluble pigment, or color bodies, from the peanut skins. (See also Pat. No. 2,405,830.)

Pat. No. 2,466,615. PHOTOELECTRIC APPARATUS FOR MEASURING LAP UNIFORMITY HAVING MEANS TO MINIMIZE TENSION ON THE LAP, Ralph A. Rusca and Charles L. Sens, patented April 5, 1949. A photoelectric apparatus for measuring the uniformity of textile mill picker laps in a continuous process, with no detrimental effect to the layers of cotton or other fibers composing the lap, is described. The apparatus as designed consists of a plate provided with an opening through which beams of light are projected through the lap onto light-sensitive photoelectric cells which actuate an automatic graphic recorder. Means are provided for unrolling and rerolling the lap after it is measured.

Pat. No. 2,471,583. STABILIZATION OF NITROCELLULOSE, Richard E. Reeves and Joel E. Giddens, patented May 31, 1949. Describes a process for the stabilization of nitrocellulose using ammonium salts instead of hydroxide as covered by Pat. No. 2,404,887. If the treating solution is buffered to remain slightly acidic, excess salt can be used with a hot solution with no harmful effect on the nitrocellulose, and thus can be introduced in connection with a boiling treatment. Ammonium salts which yield ammonium ions in the aqueous solution may be used. Ammonium sulfate is preferred although such salts as ammonium chloride and ammonium carbonate appear to be equally effective. (See also Pat. No. 2,404,887.)